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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/075,218	02/14/2002	Thomas S. Kobayashi	SC11931TP	8301

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FREESCALE SEMICONDUCTOR, INC.
LAW DEPARTMENT
7700 WEST PARMER LANE MD:TX32/PL02
AUSTIN, TX 78729

EXAMINER	
FULK, STEVEN J	

ART UNIT	PAPER NUMBER
2891	

MAIL DATE	DELIVERY MODE
12/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/075,218	KOBAYASHI ET AL.	
	Examiner	Art Unit	
	Steven J. Fulk	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9,11-18,20 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9,11-18,20 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 9, 11, 12, 17, 18, 20 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kono et al. '756.

Kono discloses a semiconductor device, comprising: a substrate (fig. 1, 102) having a first circuit formed therein (col. 6, lines 34-37; row decoder), a second circuit formed therein (column decoder), and a fuse (fig. 1, 130), wherein: the first circuit has a first contact area, the second circuit has a second contact area (fuse 130 connected at ports of row/column decoder); and the fuse, which may be selectively open-circuited, is formed overlying the passivation layer (fig. 1, 124), the fuse having a third contact area which is electrically coupled to the first contact area of the first circuit, and the fuse having a fourth contact area which is electrically coupled to the second contact area of the second circuit (col. 6, lines 34-37; fuse 130 connected at ports of row/column decoder), wherein the first contact area of the first circuit and the second contact area of the second circuit are no longer electrically connected if the fuse is open-circuited (col. 6, lines 37-38); a first interconnect for electrically connecting the first contact area to a first portion of the fuse; and a second interconnect for electrically connecting the second contact area

to a second portion of the fuse (col. 6, lines 34-37; fuse 130 connected at ports of row/column decoder), a passivation layer (124) formed overlying at least a portion of the substrate, wherein the fuse is formed overlying the passivation layer; and a packaging material formed in contact with over the fuse (col. 11, lines 33-39; fuse is opened and entire chip is packaged in resin, thus covering the exposed areas of the fuse show in fig. 1), wherein the packaging material is selected from the group consisting of a mold compound (resin) and an underfill; wherein the fuse is electrically connected to only the circuitry, and is not electrically connected to anything external to the circuitry (col. 6, lines 34-37; only electrically connected to the row/column decoder circuitry); wherein the first contact area of the first circuit and the second contact area of the second circuit are electrically connected only by way of the fuse (row/column decoder circuitry only connected by fuse); blowing the fuse before forming a packaging material (col. 11, lines 33-37), wherein the packaging material is formed on the fuse (col. 11, lines 37-39); and wherein a recessed area is formed in the passivation layer and wherein at least a portion of the fuse is formed in the recessed area (fig. 13, passivation 150; fuse formed in opening 152).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 3-7 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kono et al. '756 in view of Weber et al. '279.

Kono discloses all of the elements of the claim(s) as set forth in paragraph 2 above, but the reference does not explicitly disclose the fuse to comprise aluminum and a metal nitride having a thickness less than approximately 1 micron. Weber discloses a fuse comprising titanium nitride and aluminum (col. 2, lines 24-25 & col. 4, lines 22-24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the fuse material of Weber in the semiconductor device of Kono. One would have been motivated to do this in order to benefit from the novel properties of the fuse such as an adjustable resistance and easy manufacturing (Weber, col. 2, lines 7-12).

Response to Arguments

5. Applicant's arguments filed October 28, 2007 have been fully considered but they are not persuasive. Applicant argues that layer 124 (Fig. 1) of Kono is not a passivation layer because Kono describes layer 124 as a interlayer insulating film and describes layer 150 as a passivation layer. This argument is not persuasive because Applicant defines a passivation layer as a layer that is formed over an ILD layer and conductive regions to protect the underlying layers from physical handling and the environment (Applicant's Specification, page 6). Layer 124 of Kono is formed over an ILD layer (fig. 1, 120) and conductive regions (gate lines 109) to protect the underlying layers from physical handling and the environment when

fuse 130 is opened (fig. 1, layer 124 protects underlying layers from opening in fuse 130). Therefore, regardless of the terminology used by Kono, layer 124 of Kono fits the Applicant's definition of a passivation layer.

As further evidence that it is conventional in the art to call multiple layers a "passivation layer" and not only the final layer in the dielectric stack, Bryant et al. '433 teaches a fuse device (figs. 4a-4e) wherein a first passivation layer of oxide (fig. 4b, 16) is used, followed by a second passivation layer of silicon nitride (fig. 4c, 32). Udo et al. '590 also teaches a fuse device (figs. 1A-1I) wherein a first passivation layer of oxide (fig. 1F, 22) is used, followed by a second passivation layer of silicon nitride (fig. 1H, 27).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven J. Fulk whose telephone number is (571) 272-8323. The examiner can normally be reached on Monday through Friday, 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SJF

Steven J. Fulk
Patent Examiner
Art Unit 2891

B. WILLIAM BAUMEISTER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

December 21, 2007